The Bioeconomy Consultants
NNFCC

YOUR PARTNERS FOR BUSINESS INSIGHT AND MARKET INTELLIGENCE

Providing clients with a strategic view of feedstock, technology, policy, and market opportunity across the bioeconomy

News Review

Issue Seventy-Six

July 2018

Each month we review the latest news and select key announcements and commentary from across the biofuels sector.

Contents

Foreword

Welcome, subscribers, to the July 2018 edition of NNFCC's Biofuels News Review.

The big news this month has been the publication of a consultation to introduce E10 fuel in the UK by the Department for Transport. Currently, there are perceived to be too many market barriers for E10 to proliferate of its own accord, and so the DfT is looking to step in. Chief among the issues in the discussion has been the protection of those motorists with petrol vehicles not warrantied to run on E10. This includes almost all cars produced before 2000. The DfT has therefore proposed to retain a 'regular grade' E5 option at the pump until at least 2021. The flipside of this approach, is that the 95% of motorists with E10 compatible petrol vehicles will simply continue to use E5, resulting in no tangible penetration of E10 into the market. The consultation is open until September, and we will eagerly await any policy outcomes from it.

Hopefully the introduction of biofuels in the UK will go better than it has in Estonia. The Estonian Tax and Customs Board has reported that in the past month sales of higher-octane petrol in the country have gone up by 75% on the previous month. This coincides with the introduction of biofuel to the standard grade of petrol in the country. This highlights the very important issue of marketing: when biofuels are introduced, they need to be successfully marketed, lest the public opt to stick with more familiar options.

The E10 consultation is not the only important document published by the DfT this month: there has also been a release of the government's "Road to Zero Strategy". This aims to outline how the UK will endeavour to reduce emissions from the transport sector to zero. The strategy focuses on a transition to zero-emissions electric cars, and doesn't offer any strategy with regard to biofuels other than measures currently outlined in the RTFO. It is well-accepted in the biofuels industry that biofuels are only an interim option before electric cars take over, but they remain important option with much greater further potential and so their lack of any significant coverage in the strategy is concerning.

Read on for the latest news.

Policy

UK launches consultation on E10 biofuel

This month the UK Government launched a consultation and Call for Evidence regarding the introduction of E10.

The proposals seek to both address the need for road transport decarbonisation and the protection of motorists with older vehicles.

Key elements of their proposals include introducing "a 'protection grade' that requires larger filling stations to continue to stock the standard Premium 95 petrol in an E5 grade (95 E5), should they decide to stock E10." This, they argue, "will guarantee that consumers have access to the same E5 petrol they currently use if and when E10 is introduced."

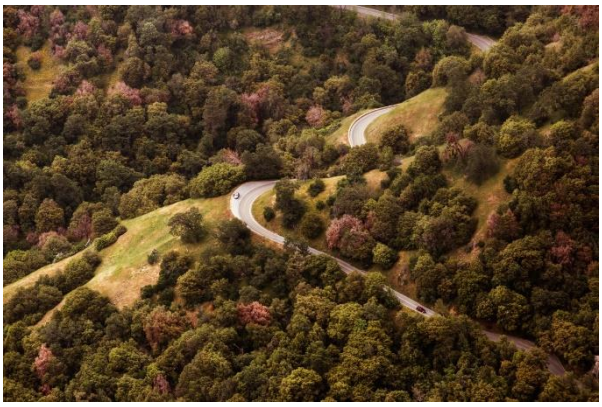
As this bears the risk of dissuading a market-led introduction of E10, the Government is also seeking evidence from stakeholders on how E10 could be introduced alongside the continued availability of Premium E5.

The consultation also includes proposals for standardising fuel labelling.

Responses are being sought by the 16th September 2018.

Click here for more information.

New EU project to investigate biofuels from forest biomass



Pxhere

Representatives from 11 European companies and universities gathered in Örnsköldsvik, Sweden, to kick-off the EU-funded Rewofuel project. This three-year, €19.7 million (about $23 million) project will demonstrate and evaluate how to best use wood residues from the forest industry to produce biofuels, with a long-term goal of starting new biorefineries across Europe. Rewofuel is a collaborative project that is expected to run for three years, and is being worked on by SEKAB E-Technology, Peab Asphalt, Sky NRG, Global Bioenergies, Neste Engineering Solutions, Repsol, Ajinomoto, Eurolysine, IPSB, TechnipFMC, and Linz University.

Click here for more information.

Mixed reaction to latest US biofuel targets

The US Environmental Protection Agency has released a draft rule proposing Renewable Fuels Standard, or RFS, levels for conventional, advanced and cellulosic biofuels for 2019 and biodiesel for 2020. So far, the biofuels blending requirements are garnering mixed reaction from the industry.

The EPA proposal boosts Renewable Volume Obligation (RVO) levels for conventional ethanol, most often satisfied with corn ethanol, to 15

billion gallons annually, which is an uptick. However, leaders from several biofuel and farm groups say the RFS is being undermined by the uncertainty regarding EPA's improper use of 1.5 billion gallons of waivers for large and highly profitable refiners and the administration's failure to live up to its commitment to support year-round E15 sales.

Cellulosic biofuel levels for 2019 were increased to 381 million gallons and advanced biofuel volumes were set at 4.88 billion gallons.

Biofuels industry group leaders also note the EPA proposal rejects any forthcoming comments citing concerns about "how small refinery exemptions are accounted." The proposal will be open to public comment until August 17. A final rule is due by November 30.

Click here for more information.

UK zero-emissions transport strategy launched

The UK government has confirmed its ambition to see at least half of new cars to be ultra-low emission by 2030 as part of plans to make the UK the best place in the world to build and own an electric vehicle.

The proposals are outlined in the Road to Zero Strategy, which sets out plans to enable a massive expansion of green infrastructure across the country, reduce emissions from the vehicles already on the UK's roads, and drive the uptake of zero emission cars, vans and trucks.

The Road to Zero Strategy will help the government to achieve key elements of its modern Industrial Strategy — leading the industries of the future and building the UK's competitiveness in the face of major global economic trends.

And the government will further look to prepare for and capitalise on the opportunities which will arise from the profound changes in how people, goods and services move around the country through its 'Future of mobility grand challenge'.

As set out in the government's Air quality plan, the UK will end the sale of new conventional petrol and diesel cars and vans by 2040. The Road to Zero Strategy will build on this commitment and outlines how government will work with industry to support achieving this.

The government will work alongside industry, businesses, academia, consumer groups, devolved administrations, environmental groups, local government and international partners to enable the deployment of one of the best electric vehicle infrastructure networks in the world and prepare for a greener future for the UK's roads.

However, the strategy shows limited ambition with respect to the use of biofuels, with no further announcement of measures to improve deployment other than those currently adopted within the RTFO.

Click here for more information.

Max Pixel

Markets

EU tariffs threaten Argentinian biodiesel

Argentina's biodiesel industry is at risk after the European Union threatened to impose tariffs on imports from the South American country, following accusations that the nation unfairly subsidized its biofuel sector.

The threat of tariffs has halted Argentine biofuel sales to the EU, industry sources have said, adding that imposing a tax would leave 85 percent of the country's biofuel exports without a viable market and may force suppliers to close shop.

Boasting major producers like Cargill and Bunge, Argentina is a leader in biodiesel exports. But the sector has suffered trade sanctions in the past after being accused of illegally benefiting from subsidized soybeans.

The industry had previously avoided EU sanctions by redirecting its biodiesel shipments to other markets. But the sector, which recorded 1.2 billion dollars in revenue last year, can no longer redirect exports to the United States.

Click here for more information.

Estonians opt for higher-octane petrol over biofuel

Flickr

The transition to biofuels that took place in May led to a 75% increase in the consumption of 98 octane petrol in Estonia.

Estonia in May transitioned to motor fuel containing biocomponents, and, likely as a result, many customers have started favouring 98 petrol, which by law is not required to have biocomponents added to it.

According to an overview compiled by the Estonian Tax and Customs Board (MTA), altogether 2 million litres of 98 octane petrol was sold in Estonia in April, but following the compulsory addition of biocomponents to motor fuels in May, 98 octane petrol sales for the month jumped to 3.5 million litres.

Click here for more information.

Zion market research foresees growth in algal biofuel market

Zion Market Research has published a new report titled "Algae Biofuel Market by Type (Bioethanol, Biodiesel, Methane, Jet Fuel, Biobutanol, Biogasoline, Green Diesel, and Others) and for Application (Transportation, Aerospace, and Other Applications): Global Industry Perspective, Comprehensive Analysis and Forecast, 2017 - 2024". According to the report, global algae biofuel market was valued at approximately USD

4.70 billion in 2017 and is expected to generate revenue of around USD 9.88 billion by end of 2024, growing at a CAGR of around 8.6% between 2017 and 2024.

Algae biofuels are obtained from several algae species such as Chlorella species, Tetraselmis suecia Botryococcus braunii, Crypthecodinium cohnii, and Nitzschia species. The biofuel produced from algae can be used in the automotive sector while the by-products can be used as pigments, antioxidants, bioactive compounds, and natural dyes. Global algae biofuel market has been witnessing a healthy growth over the past few years owing to increasing fuel demand worldwide. This growth is expected to continue over the forecast period. Furthermore, demand for algae biofuel is expected to grow on account of the growing transportation industry. Additionally, the volatility of cost and supply of fossil fuels is anticipated to boost the market in coming years. The high manufacturing cost may hinder the market during the forecast period. However, major manufacturers are investing in R&D to reduce the operating cost.

Algae can produce various biofuels such bioethanol, biodiesel, methane, jet fuel, biobutanol, biogasoline, green diesel, and others. In 2017, biodiesel dominated the market and accounting for a significant share of the total volume. This is mainly due to the rising focus on reducing fuel emissions and large diesel-powered vehicles. On the basis of application, the market is divided into transportation, aerospace, and other applications. Transportation application segment is anticipated to dominate the market accounting for more than 60% of the overall demand by 2024, due to its high potential to alter gasoline and diesel in vehicles.

Click here for more information.

Research & Development

Implementation plan for biofuels innovation

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Three new Implementation Plans were approved at the Strategic Energy Technology Plan (SET-Plan) Steering Group meeting on the 13th June 2018. Including one on Bioenergy and Renewable Fuels for Sustainable Transport.

The Implementation Plan (IP) of Action 8, Bioenergy and Renewable Fuels for Sustainable Transport, describes the Research and Innovation (R&I) activities that need to be implemented in order to achieve the strategic targets adopted in the SET Plan Declaration of Intent (DoI), agreed in December 2017 by the representatives of the European Commission services, SET Plan countries and stakeholders most directly involved in the respective sectors.

In line with the SET Plan DoI, the Implementation Plan has three common goals for the field of Bioenergy at large: Improve performance (yield and efficiency) of production, reduce GHG emissions along the value chain and reduce cost.

In order to capture the major segments of Bioenergy, this IP describes targeted implementation approaches for Renewable Fuels for Sustainable Transport (automotive and

aviation fuels, as well as hydrogen produced from renewable sources).

The estimated volume of investment for development is anticipated at 2.29 Billion €, whereas 104.31 billion € is foreseen for demonstration and scale-up activities.

Click here for more information.

US funding for microbial biofuel production

The U.S. Department of Energy has announced $40 million in funding for 31 projects to advance research in the development of microbes as practical platforms for the production of biofuels and other bioproducts from renewable resources.

The projects will further the ongoing revolution in biology and biotechnology, and will increase our understanding of how nature's sophisticated production capabilities at the cellular level can be harnessed to produce sustainable, clean, and efficient fuel as well as drive other industrial production processes.

Over the past decade, DOE-supported scientists have identified and modified a wide range of microbial organisms to be production workhorses, transforming microbes into effective platforms for the generation of fuels and other useful precursor chemicals from renewable plant feedstocks.

Using today's most advanced techniques of genomics-based systems biology, these projects seek both to improve the production capabilities of already identified organisms and to identify new organisms as potential production platforms. They will modify the organisms to maximize their effectiveness as producers.

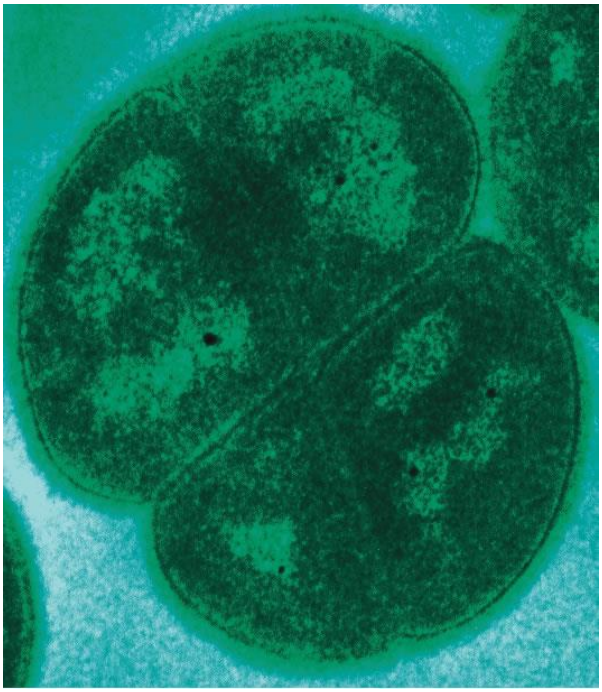
Organisms under study range from yeast and fungi to cyanobacteria and rare thermophilic microbes that thrive at extremely high temperatures. Products to be produced range from biofuels to alcohols to other valuable precursor chemicals with multiple possible downstream applications.

In addition to the projects focused on specific microorganisms, approximately one third of the projects are focused on developing and improving the essential imaging tools for this work of characterizing and modifying organisms on a microscopic scale. Several of the projects also seek to enhance capabilities for real-time "in situ" imaging. This means observing in real-time how nature's microscopic processes unfold in detail at the cellular level.

Projects were chosen by competitive peer review under two separate DOE Funding Opportunity Announcements, one for Systems Biology of Bioenergy-Relevant Microbes and another for Bioimaging Research for Bioenergy, both sponsored by the Office of Biological and Environmental Research within the Department's Office of Science.

Total funding is $40 million for projects lasting three years in duration.

Click here for more information.



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Azolla plant shows potential as biofuel feedstock

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Trade expert and entrepreneur Leonardo Gonzalez Dellan has called for the development of a new feedstock for biofuel called Azolla across Latin America. In addition to biofuel, studies have found it has potential uses as a "green manure in rice fields, as a feed supplement for aquatic and terrestrial animals, as a human food, as medicine, as water purifier, as a biofertilizer, control of weeds and mosquitoes".

Azolla is an aquatic plant that can be grown in wastewater and can be used as a feedstock for the production of bioethanol. It can produce a substantial biomass quickly when planted in contaminated waters, and with its growth help to improve the quality of the waters itself by consuming chemicals. A study has shown that Azolla can potentially produce up to 20.2 tons per hectare per year of bio-oil, and up to 48 tons per hectare per year of bio-char. It can double in mass within 2-5 days. González Dellán argues that Azolla would be especially effective in a Latin American context, highlighting that "by moving the production of bio-ethanol from arable land to wastewater, the reclaimed land can then be used for the development of further sustainable crops while continuing the production of bioethanol."

Click here for more information.

Biodiesel

Greenergy to buy dormant Dutch biodiesel plant

Greenergy, the UK's largest supplier of road fuels, has reached an agreement with Oiltanking, a leading tank terminal operator, to purchase an idle biodiesel manufacturing facility located at Oiltanking's site in Amsterdam.

The acquisition of a third biodiesel plant will allow Greenergy to meet growing demand for waste-based biofuel in the UK and Europe.

The Amsterdam biodiesel manufacturing facility was built in 2010 to process vegetable oils but was never commissioned. Greenergy plans to carry out works over the next year to convert the facility to process waste oils rather than vegetable oils and then to add further production capacity.

Greenergy already owns two major biodiesel manufacturing facilities on the east coast of England, at Immingham and Teesside, making it Europe's largest manufacturer of biodiesel from waste. These plants were both also originally designed to process vegetable oils and have been adapted by Greenergy to process waste oils with a wide range of different quality characteristics.

Click here for more information.

Bioethanol

US approves sorghum as biofuel feedstock

Environmental Protection Agency (EPA) Administrator Andrew Wheeler approved sorghum as an eligible feedstock under the Renewable Fuels Standard. The announcement marks a significant step toward levelling the playing field for ethanol plants that extract oil from sorghum.

The National Sorghum Producers worked closely with EPA over the past two years to establish a biofuels pathway for sorghum oil in the RFS. The announcement now provides new market access for sorghum producers.

Click here for more information.

Aviation Biofuel

Breakthrough in UN aviation emissions agreement

The International Civil Aviation Organization (ICAO), a UN specialized agency, has made headway on establishing international standards for its Carbon Offsetting and Reduction Scheme for International Aviation, known as CORSIA for short. This plan aims to keep the carbon dioxide emissions from international aviation at the same level from 2020 onward.

These standards measure how much airlines will need to reduce the growth of greenhouse-gas emissions from planes, the Associated Press' David Koenig reported.

Previously, the ICAO failed to adopt a global measure to reduce carbon emissions from international aviation in 2013. Instead, the agency promised to "have tools in place" for developing a market-based measure by 2016.

Aviation, along with shipping, was initially left off the 2015 Paris accord. In April, the shipping industry agreed to a historic global emissions cut. Currently aviation accounts for 2% of global emissions linked to climate change, but its share is growing rapidly, Koenig noted.

The ICAO announced making headway on standards supporting the CORSIA plan at a recent meeting in Montreal.

A change in the definition of alternative fuels to include fossil fuels that are marginally cleaner than others was one of the more contentious issues at the meeting.

Although the group agreed on emissions standards, many details will still need to be determined.

Separately from the UN standards development, the International Air Transport Association (IATA) representing the global airline industry recently developed their own emissions targets. This includes an average improvement in fuel efficiency of 1.5% per year from 2009 to 2020, a cap on net aviation CO2 emissions from 2020, and a reduction in net aviation CO2 emissions of 50% by 2050 relative to 2005 levels.

Reaching the 2020 cap requires procuring carbon credits or using biofuel, says Philippe Lacamp, senior vice president of Cathay Pacific Airways for the Americas. He recently spoke to Environmental Leader about biofuel development in the airline industry.

Click here for more information.

Public Domain Picture

Other Fuel

Global Bioenergies partner with Audi for biobased gasoline

Global Bioenergies

French group Global Bioenergies and German carmaker Audi are starting a new programme, focused on renewable gasoline made from non-food residue feedstocks.

The two companies have been partnering since 2014 in the development of renewable components for fuels. Global Bioenergies said they will work together to study the regulatory landscape for the conversion of residue feedstocks such as wheat straw and wood chips into renewable gasoline, prepare the path to commercialisation with third parties, and do tests.

Global Bioenergies says its renewable gasoline can be blended into fossil gasoline at over 30% and the mix will be suitable for any gasoline engine. The large-scale commercialisation is not expected to require any specific storage or distribution infrastructure.

The French company will deliver a renewable gasoline batch to Audi for further engine testing.

In March, Global Bioenergies announced the shipment to Audi of renewable high-performance gasoline additives including isooctane, ethyl tert-butyl ether (ETBE) and isododecane for engine testing as part of their earlier collaboration on e-fuels.

Click here for more information.

Biofuels partnership between Boskalis and GoodFuels

Boskalis Nederland is aiming to reduce its CO2 emissions by 35% as part of a new long-term partnership with biofuel supplier GoodFuels.

The partnership is part of Boskalis' plan to boost its sustainable practices and central to it is that GoodFuels' biofuels are made from pure sustainable residual flows that do not compete with the food chain or result in the deforestation of rainforests.

Boskalis Nederland first worked with GoodFuels in 2015 and its Boskalis on Bio programme, in partnership with GoodFuels and Wärtsilä, has enabled it to make a substantial contribution to the creation of the first global market for shipping industry advanced biofuels.

Trials undertaken by Boskalis Nederland have shown that sustainable biofuels perform very well while reducing CO2 emissions by 90% compared to fossil fuels, stated the company. On the Marker Wadden project in 2016, the Boskalis cutter suction dredger Edax dredged for six months using a B50 biofuel blend, 50% of which consisted of residual products from the paper industry and resulted in a huge CO2 reduction.

Click here for more information.

Liquid biogas for shipping fuel

Max Pixel

Skangas have supplied the leading Swedish shipping company and LNG pioneer Furetank with Liquefied Biogas (LBG). The Swedish LBG was delivered to Furetank's M/T FURE VINGA from Skangas' parent company Gasum's biogas facility in Lidköping. The fuelling took place at the port of Gothenburg, transferring the fuel directly from a tanker truck to the ship.

The FURE VINGA was delivered from the ship yard in April this year and is one of two vessels in the company's fleet powered by liquefied gas. Furetank has been using LNG as fuel since 2015 when the FURE WEST was converted for dual-fuel.

Together with partners Furetank is building five further sister vessels to the FURE VINGA, all of which will be dual-fuel and can be powered by LBG when the fuel is available. The vessels will be trading in North Europe and will benefit from Skangas' LNG supply network in the region. Skangas is already supporting Furetank's other LNG-fuelled vessels in ports and at sea

Liquefied biogas is a renewable and environmentally friendly fuel made from 100% local feedstocks. Firstly, biogas is produced through the processing of various types of organic waste. Secondly, the gas is purified and upgraded to approximately 97% methane. This process takes place in Skangas's parent company Gasum's biogas facility in Lidköping.

Click here for more information.

Events

Biofuels International Conference & Expo
Berlin, 10th-11th October 2018

Now in its 11th year, the acclaimed Biofuels International Conference and Expo will be taking place in Germany for the first time.

With regulations and markets constantly evolving, it's becoming increasingly important to stay informed on this ever-changing landscape.

Not only will attendees benefit from the fantastic networking opportunities available, but they will hear two-days of engaging talks from industry experts and discover the trends that will shape their biofuels plans for the near future.

Brought to you by Biofuels International, the leading international industry publication, this year's conference will be co-located with the International Biogas Congress & Expo as well as the International Biomass Congress & Expo, heralding this series of bio events as our largest gathering yet of bio related companies, giving participants unrivalled coverage.

Click here for more information.

International Biogas Congress & Expo
Berlin, 10th-11th October 2018

Brought to you by Bioenergy Insight, the leading biogas industry publication, this two-day conference will bring together leading producers, stakeholders and companies within the biogas sector.

Expert international speakers will address a range of biogas related issues and topics within Europe and beyond. Co-located with the International Biomass Congress & Expo as well as the renowned Biofuels International Conference and Expo, this series of bio events will be our largest gathering yet of bio related companies, giving participants unrivalled coverage.

Click here for more information.

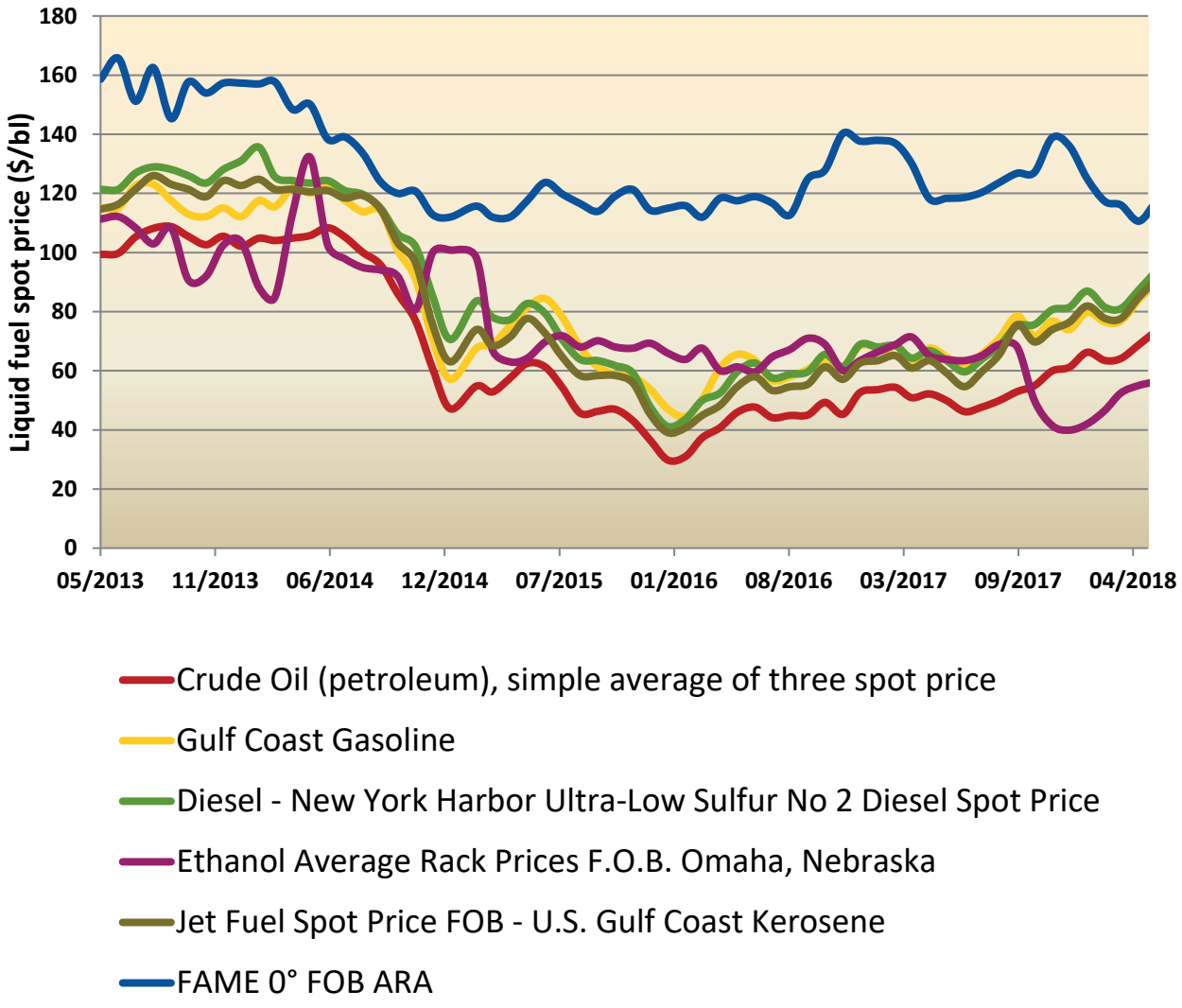
EFIB
Toulouse, 16th-18th October 2018

Join over 650 bio-based leaders in 2018 for the 11th edition of EFIB in Toulouse, France, on the 16th, 17thand 18th of October.

Click here for more information.

Price Information

Historical spot prices of liquid fossil fuels and liquid biofuels. Five years prices and up to May 2018 are given in $ per barrel.



Prices of Crude oil, diesel, gasoline, and jet fuel are recorded from www.indexmundi.com; Price of ethanol from www.neo.ne.gov; Biodiesel spot prices from http://www.kingsman.com

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